

# BBNA Tribal Energy Efficiency & Conservation Block Grant Program

Administered by Alaska Building Science Network

## Nondalton Final Report



### Community Summary

One (1) community building owned by the Nondalton Tribal Council received energy efficient lighting and weatherization:

Community Hall

Retrofits Completed: May 2012

### Village-Wide Energy Efficient Lighting and Weatherization Retrofit Summary:

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#### Total Building Savings All Measures:

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|---|------------------------|
| • Projected Annual Electrical Savings (kWh):          | 2,773                  |
| • Projected Annual Electrical Cost Savings:           | \$1,545 <sup>1,2</sup> |
| • Projected Annual Heating Fuel Savings (gallons):    | 359                    |
| • Projected Annual Fuel Cost Savings:                 | \$3,482 <sup>3</sup>   |
| • Total Projected Annual Energy Cost Savings:         | <b>\$5,027</b>         |
| • Total village wide In-kind contribution:            | \$1,552                |
| • Total project cost including In-kind contributions: | \$6,579                |
| • Simple Payback (including In-kind contributions):   | <b>7.38 years</b>      |

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<sup>1</sup> kWh Rate [used to calculate electrical cost savings] for Weatherization & Heating Measures (AkWarm Library): \$0.42

<sup>2</sup> kWh Rate [used to calculate electrical cost savings] for Lighting Measures (State of AK - AEA PCE Program Report FY 2011 avg.): \$0.57

<sup>3</sup> #2 Heating Fuel Rate [used to calculate heating fuel savings] (AkWarm Library): \$9.70/gal

## Community Hall

### Lighting Retrofit Summary:



### Materials Installed

Retrofitted 18 fluorescent light fixtures with electronic ballasts & T8 lamps

Installed 16 compact fluorescent light bulbs

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- Pre-retrofit energy use for all lighting: 2.471 kW
  - Post-retrofit energy use for all lighting: 1.043 kW
  - Energy savings projection: 1.428 kW
  - Pre-retrofit to post retrofit energy reduction: 58 percent
  - Estimated Annual Savings: 2,499 kWh

Hours/day (250 days/year)	Electrical Savings (\$)	Avoided Diesel (gal)	Avoided Diesel (\$)
4 Hours/day	\$817.39	32.08	\$141.13
<b>7 Hours/day</b>	<b>\$1,430.43</b>	<b>56.13</b>	<b>\$246.98</b>
10 Hours/day	\$2,043.47	80.19	\$352.83
Local Estimated Use	\$1,634.77	64.15	\$282.26

## Community Hall

### Weatherization Retrofit Summary:



### Materials Installed

Installed R-30 fiberglass insulation batts on perimeter of crawl space floor  
 Installed R-21 batt insulation on basement wall where missing or damaged  
 Installed new vapor barrier over existing on crawl space floor  
 Added R-10 rigid foam to rim joist of above grade wall  
 Installed R-21 loose-fill insulation in attic and baffles  
 Caulk and seal entire building to reduce air leakage  
 Installed mechanical ventilation system without heat recovery  
 Replaced two existing man doors with two U-0.16 fiberglass polyurethane core doors  
 Replaced 3 existing windows with U-0.30 vinyl windows  
 Replaced heating system with a new direct-vent space heater at AFUE of 85%

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• Pre-retrofit energy use:	1,121 Gallons / 1,019 kWh
• Post-retrofit energy use:	762 Gallons / 745 kWh
• Annual energy savings projection:	359 Gallons / 274 kWh
• Pre-retrofit to post retrofit energy reduction:	32% (Fuel) / 27% (Electricity)
• Estimated Annual Electrical Cost Savings:	<b>\$115.08</b>
• Estimated Annual Heating Fuel Cost Savings:	<b>\$3,482.30</b>